

Teaching and Learning Ecology in an Urban Setting: Service-Learning Projects



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The Problem:

- The majority of Biology majors focus on health careers and overlook *a priori* the value of Ecology, the study of how organisms interact with their environment.
- Ecology is best appreciated experientially, which presents a teaching challenge for students on urban campuses.
- For students to experience ecology, they have to do science in a very urban environment.

The Question: How does service learning augment how well students learn Ecology concepts and enhance their appreciation of Ecology?

Experimental Approach

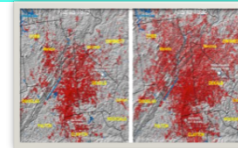
In a sophomore-level General Ecology lecture course with 66 students, project topics ranged across the curriculum from island biogeography, to parasitism by introduced species, to succession. We identified campus and community partners with whom students groups would work to help make ecological ideas more concrete for students.

We will assess the impact using student perceptions of their learning gains, their interest in ecology, and the importance of ecology for careers in life sciences.

Assessment

Follow-up questionnaire

1. The group service-learning project
 - reinforced ecological topics that I learned in this course
 - caused me to become more interested in the subject of ecology
 - helped me recognize the importance of ecology for careers in the life sciences, including health science
2. For me, the benefits of the group project for my learning of ecology were:
3. For me, the benefits of the group project for my enthusiasm for ecology were:
4. The key things I would change to improve student learning during the group project include:



Student Perceptions of the Service-Learning Project:

PROS

- Course structure did enhance some students appreciation of ecology and the value of service:
- "I loved the semester long project. Being able to contribute to the community by doing something I love was awesome."
- "Ecology was out of my interest; however, after this course, I am like ohh this is actually fine. Maybe I want to study further."

CONS

- Expectations poorly defined. Project structure was open-ended and could use up as much time as students gave it.
- Projects were timed for the second half of Fall semester when seasonal changes reduced success of some experimental designs; students felt time-constrained.
- Students perceived that the project model was new and resented being "experimented" upon

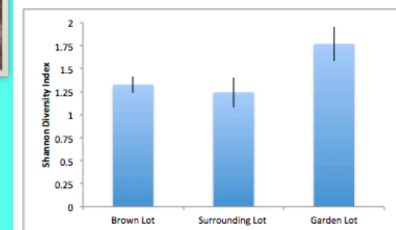
Sample Prompt

Project B – Biodiversity of an Urban Farm vs. Brown Lots (ArkFab)
Urban farms are a pleasant break in the visual experience of the concrete jungle. They are green and inviting with flowers and colors of the season. Aside from their productive and aesthetic value, do they offer sanctuary for other species besides humans? This will be the question you will be investigating in this project by conducting biodiversity surveys of Truly Living Well Center for Natural Urban Agriculture and nearby brown lots. Brown lots are undeveloped or derelict properties that litter the urban landscape. They often have the remnants of old buildings or are overgrown with grass. You will compare the biodiversity of these forgotten places with the urban farm and see how they stack up. Fungi, vertebrate, and invertebrate species will strengthen the weight of your evidence, as plant homogeneity may not tell the full story of a site's biodiversity. ArkFab at the Truly Living Well Center for Natural Urban Agriculture: www.arkfab.gatech.edu and www.trulylivingwell.net



Results

Our data indicates that a significant increase in biodiversity exists between the urban garden lots and the brown lots ($df=1$, $p=0.039$). However, our data does not suggest a significant increase in biodiversity between the surrounding garden areas and the brown lots ($df=1$, $p=0.33$).



Acknowledgements

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